timated flow field.
The fourth part deals with the enhancement of both still and moving pictures, e.g. noise filtering and motion compensation. The conversion between different video representations and resolutions is considered too.
The fifth part discusses still image compression techniques. The issues of transform coding (mainly DCT — the Discrete Cosine Transform — is covered, but subband coding and wavelets are also mentioned), quantization and symbol coding are clarified by examples based on the JPEG still image compression standard.
The sixth and last part covers the extra redundancies that are present in moving images and shows methods to exploit them through interframe compression. Finally the H.261 and MPEG video compression standards are described and some state-of-the-art projects for digital video and television systems are compared.
This book is rather mathematically oriented and assumes a strong background in Fourier analysis. The basic and advanced topics are treated in detail and the theory is excellently illustrated through more than 200 figures. The book contains more than 100 exercises; unfortunately the solutions are not provided.
I would like to recommend this book to researchers and Ph.D. students interested in advanced digital video processing techniques.

G. Uytterhoeven

Mathematica Graphics
Techniques and Applications
T. Wickham-Jones
Wolfran research inc., Champaign, IL, USA
Springer, Berlin 1994, 721 pp., ISBN 3-540-94047-2, Hardcover, £35, DM 80.

Mathematica is an environment that contains functionally in the area of symbolic algebra, numerical computations and graphics.
Graphical objects in Mathematica are clearly separated from their display. This is one of the strenghts of Mathematica since it allows to combine different graphics objects, to alter graphics objects by replacement rules, to add options and to change style. Moreover, Mathematica is extensible by writing packages which are combinations of commands and functions. This book deals with all these topics.
It consists of four parts.
Part 1 describes the build-in graphical commands. It is an introduction for beginners.
Part 2 takes a more advanced look and shows how to construct new graphics functions. A lot of interesting examples are given and clearly explained.
What is a well-designed graph? This question is discussed in part 3. Also applications in two- and three dimensional geometry and techniques for visualing two and threedimensional vectorfields are included.
Part 4 is a reference guide to all graphics commands in Mathematica.
A diskette, which can be read by DOS, NEXTSTEP, most UNIX computer systems and Macintosh computers, and which contains a lot of interesting packages, for example for labeling contourplot and for displaying constrained contourplots, is included.
The author is an expert in the field since he is the main developer of the graphics part of the Mathematica kernel.

R. Piessens

2 Conferences

CONFERENCE ON
STATE OF THE ART IN
NUMERICAL ANALYSIS

Date: 1–4 April, 1996.

Location: University of York, U.K.

Other information: CAM-Newsletter 11, nr. 2.

Contact address:
Mrs. Pamela Bye
Conference Officer
IMA
Catherine Richards House
16 Nelson Street
Southend-on-Sea
Essex, SS1 1EF
Tel: (01702) 354020
email: IMACRH@V-E.ANGLIA.AC.UK

2ND CONFERENCE ON REAL NUMBERS AND COMPUTERS

Date: 9–11 April, 1996.

Location: Marseille, France.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Jean-Claude Bajard
Lab. de l'Informatique de Marseille
Centre de Math. et d'Informatique
Université de Provence
39, rue Joliot-Curie
13453 Marseille Cedex 13, France

ILAY WORKSHOP ON LINEAR ALGEBRA IN OPTIMIZATION

Date: 22–25 April, 1996.

Location: Albi, France.

Organizers:
O. Burdakov (Cerfacs), M. Dayde (Enseeiht-Irit), I. Duff (Cerfacs and Ral) and N. Gould (Ral).

Invited speakers:
A. Bjorck (Sweden), A. Conn (USA), Yu. Evtushenko (Russia), R. Fletcher (UK), A. Griewank (Germany), C. Lemarechal (France), J. More (USA), W. Murray (USA), J. Nocedal (USA), M. Powell (UK), R. Schnabel (USA), D. Shanno (USA), Ph. Toint (Belgium).

Other information:
The first day and a half of the workshop will be a tutorial introduction to optimization methods, while the remaining two and a half days will be dedicated to invited and contributed talks addressing research topics.
Because of support, the cost of the workshop has been kept to 1500 FFR (which includes registration, documentation, lunches, tea and coffee), with a reduction to 1000 FFR for full-time students, and a fee of 3000 FFR for non-academics.

Contact address:
Secretariat ILAY
Parallel Algorithms Project, CERFACS
42 Avenue Gustave Coriolis
31057 Toulouse, CEDEX, France
Fax: +33 61 19 30 00
email: rault@cerfacs.fr

BETECH 96 BOUNDARY ELEMENT TECHNOLOGY

Date: 24–26 April, 1996.

Location: Hawaii, USA .

Other information: CAM-Newsletter 11, nr. 2.

Contact address:
Liz Kerr
Wessex Inst. of Technology
Ashurst Lodge
Ashurst
Southampton SO40 7AA
United Kingdom

ICSDT'96 THE FIFTH INTERNATIONAL CONFERENCE ON SIMULATION OF DEVICES AND TECHNOLOGIES

Date: 13–17 May, 1996.

Location: Obninsk, Russia.

Topics:
- Simulation of semiconductor devices
- Simulation of processes in thin insulator films in strong electric fields
- Simulation of technologies (including simulation of crystall growth in microgravity, simulation of nuclear technologies and nuclear power plants)
- Numerical methods for simulation devices and technologies

Contact address:
Dr. V. Ginkin
Bondarenko Sq.1.
Obninsk
Kaluga Region, 249020
Russia
Fax: (095)8833112
email: ippe.ginkin@kris.kaluga.su

PARALLEL CFD'96

Date: 20–23 May, 1996.

Location: Capri, Italy.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Pasquale Schiano
CIRA
via Maiorise
81043 Capua (CE)
Italy
Tel.: +39 823 623140
Fax: +39 823 623126
email:parcfd96@cira.it

THIRD INTERNATIONAL CONFERENCE ELECTROSOFT 96 SOFTWARE FOR ELECTRICAL ENGINEERING ANALYSIS AND DESIGN

Date: 28–30 May, 1996.

Location: San Miniato, Italy.

Other information: CAM-Newsletter 11, nr. 2.

Contact address:
Paula Doughty-Young, Conference Secretariat
Wessex Inst. of Technology, Ashurst Lodge
Ashurst, Southampton, SO40 7AA
United Kingdom
Tel: 44 (0) 1703 293223
Fax: 44 (0) 1703 292853
email: CMI@ib.rl.ac.uk

FOURTH INTERNATIONAL CONFERENCE LOCALISED DAMAGE 96 COMPUTER AIDED ASSESSMENT AND CONTROL

Date: 3–5 June, 1996.

Location: Fukuoka, Japan.

Other information: CAM-Newsletter 11, nr. 2.

Contact Address:
Jane Evans, Conference Secr. LD96
Wessex Inst. of Technology, Ashurst Lodge
Ashurst, Southampton SO40 7AA
United Kingdom
Tel: 44 (0) 703 293223
Fax: 44 (0) 703 292853
email: CMI@ib.rl.ac.uk

9TH INTERNATIONAL CONFERENCE ON DOMAIN DECOMPOSITION METHODS

Date: 3–8 June, 1996.

Location: Hardanger Fjord, Bergen, Norway.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Mrs Synnøve S. Palmstrøm
DDM9 Conference secretary
Department of Informatics/Parallab
Hxyteknologisenteret
N-5020 Bergen, Norway
Tel.: +47 55 54 41 70
Fax.: +47 55 54 41 99
email: dd9@ii.uib.no

RECENT ADVANCES IN PARTIAL DIFFERENTIAL EQUATIONS AND APPLICATIONS

Date: 10–14 June, 1996.

Location: Venice, Italy.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Professor Renato Spigler
c/o Dipart. di Metodi e Modelli Matematici
Universita di Padova, Via Belzoni, 7
35131 Padova, Italy
Tel.: 0039-49-8275.914; 8275.900, 8275.901
Fax : 0039-49-8275.995
email: spigler at kutta.dmsa.unipd.it

ALGEBRAIC MULTILEVEL ITERATION METHODS WITH APPLICATIONS

Date: 13–15 June, 1996.

Location: Un. of Nijmegen, The Netherlands.

Other information: CAM-Newsletter 11, nr. 2.

Contact address:
Prof. Owe Axelsson
Fac. of Math. & Inform.
Toernooiveld 1
NL-6525 ED Nijmegen
The Netherlands
Fax: +31 (0)24 3652140
email: amli96@sci.kun.nl

6TH INTERNATIONAL CONFERENCE ON HYPERBOLIC PROBLEMS THEORY, NUMERICS, APPLICATIONS

Date: 15–19 June, 1996.

Location: Hong Kong.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Dr. Tong Yang, Dept. of Mathematics
City Un. of Hong Kong, 83 Tat Chee Avenue
Kowloon, Hong Kong
email: mago@cityu.edu.hk

4TH INTERNATIONAL CONFERENCE INTEGRAL METHODS IN SCIENCE AND ENGINEERING

Date: 17–20 June, 1996.

Location: Oulu, Finland.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
S.Seikkala, IMSE96, Div. of Mathematics
Univ. of Oulu, 90570 Oulu, Finland
email: Seppo.Seikkala@ee.oulu.fi

HOUSEHOLDER SYMPOSIUM XIII ON NUMERICAL ALGEBRA

Date: 17-21 June, 1996.

Location: Pontresina, Switzerland.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Dr. M.H. Gutknecht, IPS, RZ F2, ETH-Zentrum
CH-8092 Zurich, Switzerland
email: mhg@ips.id.ethz.ch

MITRINOVIC MEMORIAL CONFERENCE

Date: 20–21 June, 1996.

Location: Belgrade, Serbia-Yugoslavia.

Other information: CAM-Newsletter 11, nr. 3

Contact address:
Prof. Gradimir V. Milovanovic
Faculty of Electronic Engineering
P.O. Box 73, 18000 Nis
Serbia, Yugoslavia

FIRST WORKSHOP ON NUMERICAL ANALYSIS AND APPLICATIONS

Date: 24–27 June, 1996.

Location: Russe, Bulgaria.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Plamen Yalamov
Dept. of Mathematics, University of Russe
7017 Russe, Bulgaria
email: yalamov@iscbg.acad.bg

MAFELAP 1996

Date: 25–28 June, 1996.

Location: Brunel Un., Uxbridge, Middlesex, U.K.

Other information: CAM-Newsletter 11, nr. 1.

Contact address:
The Secretary, MAFELAP 1996, BICOM
The Brunel Inst. of Computational Maths
Brunel University, Uxbridge UB8 3PH, U.K.
email: mafelap@brunel.ac.uk

TIME-FREQUENCY AND TIME-SCALE METHODS FOR ECONOMICS AND FINANCE

Economic and financial data are often analysed in either the time domain or the frequency domain. If the data is stationary, then these are useful approaches. However, it is often the case that economic and financial data are non-stationary, or non-homogeneous in some sense. In these cases, it is instructive to look at the data either on the time-frequency plane or on multiple scales over time. Time-frequency and time-scale methods allow us to do this. We can observe the changes in behaviour over time.

Date: 26-28 June, 1996.

Location: Geneva, Switzerland.

Sponsor: Society for Computational Economics.

Topics:
Papers are sought that address time-frequency and time-scale methods, as they relate to economics and finance, in areas including, but

not limited to: wavelets, wavelet packets, time-frequency distributions (Wigner-Ville, etc.), atomic decompositions, matching pursuit, basis pursuit, windowed Fourier methods, and Gabor decompositions.

Contact address:
Dr. Seth A. Greenblatt
Department of Economics
University of Reading
PO Box 218
Whiteknights, Reading RG6 6AA
ENGLAND
Tel: +44(1734)875123, Ext. 4059
Fax: +44(1734)750236
email: S.A.Greenblatt@rdg.ac.uk

12TH INTERNATIONAL CONFERENCE ON ANALYSIS AND OPTIMIZATION OF SYSTEMS IMAGES, WAVELETS AND PDE'S

Date: 26–28 June, 1996.

Location: Paris, France.

Organizers: CEREMADE and INRIA.

Scope:
This conference is devoted to image processing, wavelets and partial differential equations. Its aim is to discuss the impact on image analysis of the recent mathematical developments of mathematical theories of multiscale analysis (wavelet theory and variants : wavelet packets,...), partial differential equations, variational methods that have recently been proposed for image processing tasks like image restoration, shape recognition, etc... Presentations by image processing researchers and by mathematicians on both theoretical and practical aspects will be welcome.

Contact addres:
Claudie THENAULT
INRIA Rocquencourt
Relations Extérieures
Bureau des Cours et Colloques
BP 105
78153 Le Chesnay Cedex, France
Tel: 33 1 39 63 56 75
Fax: 33 1 39 63 56 38
email : symposia@inria.fr

THIRD INTERNATIONAL CONFERENCE CURVES AND SURFACES

Date: 27 June – 3 July, 1996.

Location: Chamonix, Mont Blanc, France.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Curves and Surfaces, ENST-Bretagne, BP 832
29285 Brest Cedex, France
email: chamonix@univ-rennes1.fr

FINITE ELEMENT METHODS SUPERCONVERGENCE POST–PROCESSING AND A POSTERIORI ESTIMATES

Date: 1–4 July, 1996.

Location: Un. of Jyvaskyla, Finland.

Organizers:
Pekka Neittaanmaki (chairman), Michal Krizek (Czech Republic), Rolf Stenberg (Finland).

Scope: During the development of the finite element method it has been found that at some exceptional points the rate of convergence of FE-approximations exceeds the optimal global rate. This phenomenon has come to be known as "superconvergence". The rate of local or global convergence can be improved also by various post-processing techniques.
The aim of the conference is to bring together people who work on superconvergence phenomena and a posteriori estimates in the numerical solution of differential and integral equations, variational inequalities and other problems of mathematical physics.

Other information: The organizers intend to publish the conference proceedings. Thus, all participants are kindly asked to prepare survey papers of their own results. Articles with new superconvergence results are welcome as well. The lengtl of any contribution should not exceed 15 pages.

Contact address:
Prof. P. Neittaanmaki, Dept. of Mathematics
Univ. of Jyvaskyla, P.O.Box 35
FIN-40351 Jyvaskyla, Finland
Fax: (+358 41) 602731
email: neittaanmaki@jylk.jyu.fi

GRID ADAPTATION IN COMPUTATIONAL PDEs THEORY AND APPLICATIONS

Date: 1–5 July, 1996.

Location: Edinburgh, Scotland.

Organizer: The Internat. Centre for Mathematical Sciences (ICMS).

Invited speakers:
M. Baines (UK), R. Bank (USA), M. Berzins (UK), J. Flaherty (USA), L. Formaggia (Italy), C. Johnson (USA), K. Morgan (UK), J.T. Oden (USA), R. Russell (Canada), J. Verwer (Netherlands), N. Weatherill (UK).

Other information:
The meeting will consist of a day of expository seminars given by some of the main speakers, followed by a series of invited and contributed sessions. We are seeking contributed papers for the meeting in all areas of the analysis and application of adaptive grid techniques for PDEs. A number of short papers will be accepted for presentation at the meeting. Prospective contributors should submit a title and short abstract according to the following timetable: Deadline for submitting abstracts: 1st March 1996. Notification of Acceptance: mid-March.

Contact address:
D.B. Duncan
Department of Mathematics
Heriot-Watt University, Scotland
email: dugald@ma.hw.ac.uk
WWW: http://www.ma.hw.ac.uk/icms/apde/

PRAGUE MATHEMATICAL CONFERENCE 1996

Date: 8–12 July, 1996.

Other information: CAM-Newsletter 11, nr. 2.

Contact address:
Prague Mathematical Conference 1996
Math. Inst. of the Academy of Sciences
Zitna 25, CZ-115 67 Praha 1
Czech Republic
Tel: (+42 2) 2421 3973
Fax: (+42 2) 2422 7633
email: pmc96@earn.cvut.cz

VIITH EPSRC NUMERICAL ANALYSIS SUMMER SCHOOL

Date: 8–19 July, 1996.

Location: Leicester University, UK.

Scope:
The principal aim of the meeting is to gather together numerical analysts and a team of internationally renowned experts for a period of intensive study and research. It is intended that the lectures should be accessible to people (particularly research students) for whom the material is new, to enable them to acquire reasonable competence in it, thus broadening their research horizons. Those with greater initial knowledge should end up being able to work on significant problems in the area.

Program:
The meeting will comprise two one-week modules, each of which can "stand alone", although it is expected that many participants and speakers will stay for the full two weeks.
Week 1: 8th-12th July, 1996.
- G. Cybenko (Dartmouth) "Neural Networks"
- M. Plum (Clausthal) "Eigenvalue Problems for Differential Equations"
- G. Strang (MIT) "Wavelets".

Week 2: 15th-19th July, 1996.
- L. Greengard (NYU) "Multipole Methods"
- C. Schwab (ETH, Zurich) "Hierarchical Modelling"
- J. Xu (Penn State) "Multilevel and Domain Decomposition Methods".

Other information:
There will be a substantial amount of time available for research and discussion with the assembled experts, who will make themselves available for consultation in "office hours". Typeset lecture notes will be provided by most of the speakers. In addition, there will be an opportunity for participants to present research seminars on their own work.

Contact address:
Dr. M. Ainsworth
Mathematics and Computer Science
Leicester University
Leicester LE1 7RH, United Kingdom
email: ain@mcs.le.ac.uk

SECOND INTERNATIONAL CONFERENCE ON MONTE CARLO AND QUASI-MONTE CARLO METHODS IN SCIENTIFIC COMPUTING

Date: 9–12 July, 1996.

Location: Un. of Salzburg, Austria.

Organizers:
P. Hellekalek (Salzburg), G. Larcher (Salzburg), H. Niederreiter (Vienna), P. Zinterhof (Salzburg).

Topics: Theoretical and practical aspects of the following themes will be emphasized:
- Monte Carlo methods
- quasi-Monte Carlo methods
- simulation methods
- random number generation
- applications of the topics above, case studies

Invited speakers: K. Binder (Un. Mainz, Germany), L. Devroye (McGill Un., Canada), J. Eichenauer-Herrmann (TH Darmstadt, Germany), P. Glasserman (Columbia Un., USA), P. Heidelberger (IBM T.J. Watson Res. Center, USA), G. Larcher (Un. Salzburg, Austria), P. L'Ecuyer (Un. de Montréal, Canada), H. Niederreiter (Österreichische Ak. der Wissenschaften, Austria).

Other information: The conference will address similar issues as the First Conference on Monte Carlo and Quasi-Monte Carlo Methods in Scientific Computing held at the University of Nevada, Las Vegas, for which the Proceedings have already appeared (Lecture Notes in Statistics, Vol. 106, Springer, New York, 1995).
Those wishing to contribute a 20 minute talk are asked to submit, by 1 March, 1996, three copies of an abstract containing at most 300 words. A refereed conference proceedings edited by H. Niederreiter and P. Zinterhof will be published, and authors of accepted abstracts will be invited to submit a full paper.

Contact address:
Gerhard Larcher
Dept. of Mathematics, Un. of Salzburg
Hellbrunnerstrasse 34
A-5020 Salzburg, Austria
email: mc&qmc96@sbg.ac.at
WWW: http://random.mat.sbg.ac.at/mc96/index.html

INTERNATIONAL WORKSHOP ON ACCURATE EIGENSOLVING AND APPLICATIONS

Date: 11–17 July, 1996.

Location: Split, Croatia.

Organizers:
Jesse Barlow (The Pennsylvania State Un.), Ivan Slapnicar (Un. Split), Kresimir Veselic (Fernun. Hagen).

Invited speakers:
Beresford Parlett, James Demmel (Un. of California at Berkeley), Ilse Ipsen (North Carolina State Un.), Zlatko Drmac (Un. of Colorado at Boulder), Hongyuan Zha, Jesse Barlow (Pennsylvania State Un.), Ivan Slapnicar (Un. Split), Kresimir Veselic (Fernun. Hagen).

Other information:
The main theme is the accuracy in the EVD or SVD computation or even in solving linear systems. We will stress this to be a workshop and not overload the program with too many speakers. We rather prefer to give more time per speaker. We will therefore have invited lectures (one or two) in the morning, while the afternoon will be reserved for contributed lectures, including those from junior people, as well as for less formal discussions and working groups.
Possible general themes for discussion are:
- how to turn recent results on accurate algorithms systematically into a good software,
- how to present them in a monograph,
- how to let them influence the teaching of numerical linear algebra,
- real world engineering problems.

Contact address:
Kresimir Veselic
Fernuniversitaet Hagen
LG Mathematische Physik
P.O. Box 940
D-58084 Hagen, Germany
email: Kresimir.Veselic@Fernuni-Hagen.de
WWW: http://adria.fesb.hr/slap/workshop

NUMERICAL METHODS AND COMPUTATIONAL MECHANICS IN SCIENCE AND ENGINEERING

Date: 15–19 July, 1996.

Location: Miskolc, Hungary.

Other information: CAM-Newsletter 11, nr. 2.

Contact address:
A. GALANTAI, Institute of Mathematics
University of Miskolc
3515 Miskolc-Egyetemvaros, Hungary
Tel: 36-46-365111
Fax: 36-46-365174
email: matnum@gold.uni-miskolc.hu

7TH INTERNATIONAL CONGRESS ON COMPUTATIONAL AND APPLIED MATHEMATICS

Date: 21–26 July, 1996.

Location: Katholieke Univ. Leuven, Belgium.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Prof. M.J. Goovaerts
K.U.Leuven, huis Eygen Heerd
CRIR, Minderbroederstraat 5
B-3000 Leuven, Belgium
tel/fax: (32) 16 29 53 46
email: fdbaa35@cc1.kuleuven.ac.be

I S S A C '9 6 INTERNATIONAL SYMPOSIUM ON SYMBOLIC AND ALGEBRAIC COMPUTATION

Date: 24–26 July, 1996.

Location: Zurich, Switzerland.

Sponsors: ACM SIGSAM, ACM SIGNUM.

Topics:
- Algorithmic mathematics: algebraic, symbolic, and symbolic-numeric algorithms in all areas of mathematics;
- Computer science: theoretical and practical questions in symbolic mathematical computation, including:
  - computer algebra systems and problem solving environments,
  - programming languages and libraries for symbolic computation
  - user interfaces,
  - data structures,
  - parallel computing,
  - software architectures,
  - concrete analysis and benchmarking,
  - complexity of computer algebra algorithms,
  - artificial intelligence techniques,
  - automatic differentiation and code generation.
- Applications: problem treatments incorporating algebraic, symbolic or symbolic-numeric computation in an essential or novel way, including engineering, economics and finance, physical and biological sciences, computer science, logic, mathematics, statistics, and use in education.

Other information:
The planned activities include invited presentations, original research papers, tutorial courses, vendor exhibits and software demonstrations. Proceedings will be distributed at the symposium.
Proposals for workshops, tutorial courses, demonstrations, panel discussions or related activities are welcomed. User-groups, editorial boards or other associations desiring meeting space during the course of the symposium are encouraged to contact the conference organizers.

Contact address:
Erwin Engeler
Mathematics
ETH Zentrum HG
CH-8092 Zurich, Switzerland
email: issac96@math.ethz.ch

CONFERENCE ON NUMERICAL MATHEMATICS

Date: 27–30 July, 1996.

Location: University of Cambridge, England.

Other information: CAM-Newsletter 11, nr. 1.

Contact address:
A. Iserles
Dept. of Appl. Maths and Theor. Physics
Silver Street
Cambridge CB3 9EW , U.K.
email: ai@amtp.cam.ac.uk

WAI'96 - WORKSHOP ON INTERVAL ARITHMETIC

Date: 7–8 August, 1996.

Location: Recife - Pernambuco, Brazil.

Sponsors:
UFPE - Universidade Federal de Palambuco
SBC - Sociedade Brasileira de Computacao

Topics:
Theoretical foundations of the computational arithmetic, interval algorithms, interval/ arithmetic co-processors, interval probability, programming languages for scientific computation, tools for scientific computation.

Other information:
The workshop is a part of a larger annual event being held on the campus of the Federal University of Pernambuco on August 4-9, 1996: the XVI Meeting of the Brazilian Computing Society. This meeting will integrate a variety of events: presentations of technical papers and invited talks, panels, tutorials, research workshops and tool demonstrations.

Conference languages: English, Portuguese.

Contact address:
WAI96, Departamento de Informatica
C.C.E.N. Av. Prof. Luiz Freire s/n
Cidade Universitaria
CEP 50732-970
Recife - PE- BRAZIL
Fax: (081) 27108430
email: wai96@di.ufpe.br
WWW: http://cs.utep.edu/interval-comp/main.html

SIXT CONFERENCE OF THE INTERNATIONAL LINEAR ALGEBRA SOCIETY

Date: 14–17 August, 1996.

Location: Chemnitz, Germany.

Invited speakers:
R. Guralnik (Los Angeles), B. Parlett (Berkeley), C. Ringel (Bielefeld), P. Van Dooren (Louvain La Neuve), U. Helmke (Wrzburg), D. Hershkowitz (Haifa), R. Bapat (New Dehli), L. Berg (Rostock), R. Byers (Lawrence, Kansas), M. Eiermann (Freiberg), R. Gow (Dublin), C. Li (Williamsburg, Virginia), N. Nichols (Reading), R. Mathias (Williamsburg, Virginia), T. Pate (Auburn, Alabama), F. Hall (Atlanta, Georgia).

Other information:
Contributed papers from all areas of linear algebra and applications are solicited. Papers fitting within the scope of the conference will be accepted, subject to unavoidable limitations of space and time. Selected papers will be scheduled as 15(+5)-minute presentations in concurrent sessions. Two copies of an extended one-page abstract should be submitted by May 1, 1996, to the address below.
A special issue of the journal "Linear Algebra and its Applications" will publish the conference proceedings. Submission deadline for papers is November 30, 1996.

Contact address:
Matthias Bollhiöfer
Fakultät für Mathematik
Technische Un. Chemnitz
D-09107 Chemnitz, GERMANY
Tel.: (+49) 371 531-2142
Fax: (+49) 371 531-2657
email: bolle@mathematik.tu-chemnitz.de
WWW: http://www.tu-chemnitz.de/ilas/

PARA96 WORKSHOP ON APPLIED PARALLEL COMPUTING IN INDUSTRIAL PROBLEMS AND OPTIMIZATION

Date: 18–21 August, 1996.

Location: Tech. Un. Denmark, Lyngby, Denmark.

Organizers:
UNI*C (The Danish Computing Centre for Research and Education)
IMM (The Inst. of Math. Modelling of the Technical Un. of Denmark)
Jack Dongarra.

Invited speakers:
Jack Dongarra (Tennessee Un. and Oak Ridge Nat. Lab., USA), Bengt Fornberg (Un. of Colorado, USA), Gene Golub (Stanford Un., USA), Panos Pardalos (Un. of Florida, USA).

Other information:
A limited number of contributed talks and Poster sessions will be selected for the workshop. The deadlines are:
- Abstracts (no more than one A4 page): June 15, 1996.
- Papers (between 5 and 10 pages): July 31, 1996.

The PARA96 Proceedings will be published by Springer-Verlag in their Lecture Notes on Computer Science series.
The PARA96 meeting will be followed by a linear programming workshop, August 22-24, 1996, organized by the Institute of Mathematical Modelling.

Contact address:
PARA96, UNI*C, DTU, Bldg. 304
2800 Lyngby, Denmark
Attn: Jerzy Wasniewski
Fax: (+45) 45 93 02 20
email: workshop@uni-c.dk
WWW: http://uniweb.uni-c.dk/para/para96.html

2ND INTERNATIONAL WORKSHOP ON TLS AND ERRORS-IN-VARIABLES MODELING

This interdisciplinary workshop is a continuation of a previous workshop on "Total Least Squares: Concepts, Algorithms, Applications" which was held in Leuven, Belgium, August 1991, and aims to bring together numerical analysts, statisticians, engineers, economists, chemists, etc. in order to discuss recent advances in Total Least Squares (TLS) techniques and errors-in-variables modeling.

Date: 21–24 August, 1996.

Location: Leuven, Belgium.

Conference committee:
Sabine Van Huffel (chairperson), Bart De Moor, Wayne Fuller, Leon Gleser, Gene Golub, Bjorn Ottersten, Pete Stewart.

Topics:
TLS Concepts and Properties: structured and constrained TLS, other norms, nonlinear errors-in-variables, curve fitting, statistical, numerical, robustness and optimization aspects.
TLS Algorithms: real-time, adaptive, recursive, iterative algorithms, based on SVD or related decompositions, architectures, complexity, accuracy, regularization, convergence.
TLS Applications: array signal processing, model identification, spectrum analysis, harmonic retrieval, direction finding, geology, chemistry.

Other information:
Authors are invited to submit four copies of an extended summary (2–4 pages) to the workshop secretariat for review before February 15. Fax number and email should be provided if possible. In particular, overview papers describing recent advances on any of the above-mentioned topics are invited. Other topics related to TLS, errors-in-variables modeling, and their applications are also welcome. Overview papers will be presented as lecture, the other ones in poster form. Authors of accepted contributions will be asked to prepare a version for publication in the conference proceedings.

Contact address:
Ida Tassens
Dept. of Electrical Engineering, ESAT/SISTA
Katholieke Universiteit Leuven
Kardinaal Mercierlaan 94
B-3001 Leuven-Heverlee, Belgium
Tel.: 32/16/32.17.09
Fax : 32/16/32.19.86
email: ida.tassens@esat.kuleuven.ac.be

EURO-PAR'96

Euro-Par is the merging of CONPAR-VAPP and PARLE, which were already two major events in the field of parallel processing. The goal of Euro-Par'96 is to gather people interested in any aspects of parallel computing and architectures.

Date: 27–29 August, 1996.

Location: Ecole Normale Superieure de Lyon, France.

Organizer:
LIP (Laboratoire de l'Informatique du Parallelisme URA CNRS 1398).

Topics:
Euro-Par'96 is split into workshops which focus on specific domains. Each workshop is chaired by a major leading researcher in the field:

1. Programming environment and tools, by Jack Dongarra, Knoxville, USA.
2. Routing and communication in interconnection networks, by Robert Cypher, Baltimore, USA.
3. Automatic parallelization and high performance compilers, by Chris Lengauer, Passau, Germany.
4. Distributed systems and algorithms, by Friedemann Mattern, Darmstadt, Germany.
5. Parallel languages, programming and semantics, by Ian Foster, Argonne, USA.
6. Parallel non numerical algorithms, by Burkhard Monien, Paderborn, Germany.
7. Parallel numerical algorithms, by Ian Duff, Didcot, UK.
8. Parallel DSP and image processing, by Larry Davis and Joseph Jaja, College Park, USA.
9. VLSI design automation, by Francky Catthoor, Leuven, Belgium.
10. Computer arithmetic, by Jean-Marc Delosme, Yale, USA.
11. High performance computing and applications, by Wolfgang Gentzsch, Genias, Germany.
12. Theory and models of parallel computing, by William McColl, Oxford, UK.
13. Parallel computer architecture, by Chris Jesshope, Surrey, UK.
14. Networks and ATM, by Paul Kuehn, Stuttgart, Germany.
15. Optics and other new technologies for parallel computation, by Ahmed Louri, Tucson, USA.
16. Neural networks, by Michel Verleysen, Louvain, Belgium.
17. Scheduling and load balancing, by Apostolos Gerasoulis, Rutgers, USA.
18. Critical systems, by Amir Pnueli, Weizman, Is.
19. Performance evaluation, by Francois Baccelli, Nice, France.
20. Instruction level parallelism, by Guang R. Gao, Montreal, Canada.
21. High-level and meta-level control in parallel symbolic programs, by Jean-Pierre Briot, Paris, France.
22. Parallel and distributed databases, by Erhard Rahm, Leipzig, Germany.

Workshops duration will be between 1/2 day up to 2 days depending on the number of selected papers.

Other information:

All the accepted papers will be published in the collection Lecture Notes in Computer Science by Springer-Verlag. The proceedings of Euro-Par'96 will contain full papers (12 pages), short papers (8 pages), and poster papers (4 pages).

Submitted papers should be no longer than 15 pages. The cover page must clearly indicate the names, addresses, affiliations, and electronic addresses of the authors. The workshop number and the workshop name related to each submitted paper must also be clearly indicated on the cover page. The deadlines are as follows:

- Electronic submission: February 18, 1996
- Non electronic submission: February 4, 1996
- Notification of acceptance/rejection: May 10, 1996
- Camera-ready of accepted papers: June 10, 1996.

Contact address:

Euro-Par'96
LIP - CNRS
Ecole Normale Superieure de Lyon
F-69364 Lyon Cedex 07
France
Tel.: +33 72 72 80 37
Fax: +33 72 72 80 80
email: europar96@lip.ens-lyon.fr
WWW: http://www.ens-lyon.fr/LIP/europar96

THE 2ND IEEE EUROPEAN WORKSHOP ON COMPUTER-INTENSIVE METHODS IN CONTROL AND SIGNAL PROCESSING

Date: 28–30 August, 1996.

Location: Prague, Czech Republic.

Organizers:

- Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic
- School of Engineering & Information Sciences, University of Reading, UK.

Topics:

The extreme dimensionality of computations required by theoretically optimal mathematical procedures of inference and decision-making is a serious obstacle in a variety of fields such as control, signal processing, image reconstruction, pattern recognition, nonparametric estimation, expert systems, etc. The "curse of dimensionality" has often been cured by just ad hoc simplifications at the cost of losing a lot from the theoretical properties of the optimal solution. Recent progress in attacking high-dimensional problems in the above mentioned fields makes it possible to think of picking up widely applicable principles and methods of handling or at least approaching the problem. The key idea of the Workshop is that the problem is common to a number of different disciplines such as control theory, mathematical statistics, system identification, information theory, statistical mechanics, artificial intelligence (to name but a few), and that we can and should learn from each other.

Topics relevant to the Workshop include:

- Parallel algorithms and architectures
- Neural nets
- Approximation methodologies
- Finite-dimensional estimation, filtering and control
- Complexity
- Multivariate integration and optimization
- Statistics and approximations
- Non-traditional approaches

Other information:

Because of a strongly inter-disciplinary character of the Workshop, we plan to give a considerable space to invited lectures by leading specialists in various fields. The Workshop will further include several sessions of contributed papers, poster sessions and computer demonstrations.

The registration fee is 300 Swiss francs. A reduced fee of 200 Swiss francs applies to students. Related hardware and software will be demonstrated during the Workshop. This will appear as part of the poster session. The exhibition and software presentation will be free to all participants.

Contact address:

M. Karny
IEEE Workshop CMP'96
Inst. of Information Theory and Automation
P.O. Box 18
182 08 Prague, Czech Republic
Tel: +42-2-6641 3421
Fax: +42-2-6641 4903
email: school@utia.cas.cz

INTERNATIONAL CONFERENCE ON NONLINEAR PROGRAMMING

Date: 2–5 September, 1996.

Location: Beijing, China.

Other information: CAM-Newsletter 11, nr. 2.

Contact address:

Prof. Ya-xiang Yuan
State Lab. of Scientific and Eng. Computing
ICMSEC, Chinese Academy of Sciences
P.O. Box 2719, Beijing 100080, China
Tel: +86-10-255-9001, +86-10-254-5820
Fax: +86-10-254-2285
email: yyx@lsec.cc.ac.cn

ECCOMAS 96 NUMERICAL METHODS IN ENGINEERING COMPUTATIONAL FLUID DYNAMICS

Date: 9–13 September, 1996.

Location: Paris, France.

Other information: CAM-Newsletter 11, nr. 1.

Contact address:

ECCOMAS 96, Université de Paris VI
Laboratoire d'Analyse Numérique
4, Place Jussieu
75252 Paris Cedex 05, France
email: eccomas96@ann.jussieu.fr

IIPP-96
International Conference on INVERSE and ILL-POSED PROBLEMS

Date: 9–14 September, 1996.

Location: Moscow, Russia.

Organizer: Moscow Lomonosov State Univ.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Dr. A.S.Krylov
Faculty of Comput. Maths and Cybernetics
Moscow Lomonosov State University
Vorobievy Gory, 119899, Moscow, Russia
email: kryl@cs.msu.su

5th International Conference MODELLING and SIMULATION of ELECTRIC MACHINES, CONVERTERS and SYSTEMS

Data: 17–19 September, 1996.

Location: Saint-Nazaire, France.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Secrétariat Electrimals 96
R. Le Doeuff GE 44 - Large Bd de l'Univ.
BP 406, 44602 Saint-Nazaire Cedex, France
Tel: 40 17 26 02
Fax: 40 17 26 18
email: ledoeuff@large.crttsn.univ-nantes.fr

BEM 18
18th World Conference on the BOUNDARY ELEMENT METHOD

Date: 24-26 September, 1996.

Location: Braga, Portugal.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Liz Kerr
Conference Secretariat, BEM 18
Wessex Institute of Technology
Ashurst Lodge, Ashurst
Southampton, SO40 7AA, U.K.
Tel: 44 (0) 1703 293223
Fax: 44 (0) 1703 292853
email: CMI@ib.rl.ac.uk

VECPAR'96
Second International Meeting on VECTOR AND PARALLEL PROCESSING

Date: 25–27 September, 1996.

Location: Un. do Porto, Portugal.

Topics:
- Architectures, operating systems, environments, software tools and languages
- Numerical and symbolical algorithms
- Applications in Science and Engineering (e.g. computational fluid dynamics, reservoir modelling, etc.)
- Industrial and commercial systems and applications (e.g. database based systems, traffic flow modelling, optimization)
- Signal processing and both image processing and synthesis

Other information:
The focus of the scientific section of the Meeting will be key invited lectures to describe the concepts behind vector/parallel processing and to highlight some of the major trends in the field. After these main talks, contributed papers of approximately 20 minutes duration will be presented. Papers on systems and applications to Science and Engineering will be encouraged. Extended abstracts are due by 15 March 1996.

Contact address:
VECPAR 96
Dr. Jose Laginha Palma
Faculdade de Engenharia
DEMEGI-Seccao de Fluidos e Calor
Rua dos Bragas
4099 Porto Codex
Portugal
Tel.: International+2+2001746
Fax: International+2+312476
email: vecpar96@garfield.fe.up.pt
WWW: http://garfield.fe.up.pt:8001/ vecpar96/

I N T E R V A L '96
INTERNATIONAL CONFERENCE ON
INTERVAL METHODS AND COMPUTER AIDED PROOFS
IN SCIENCE AND ENGINEERING

Date: 30 September–2 October, 1996.

Location: Wuerzburg, Germany.

Scope: INTERVAL'96 will focus on computer assisted proofs ranging from symbolic computation through rigorous error estimation, and including different paradigms such as functional and logic programming as well as the solution of constraint systems. The traditional interval approach (sometimes the terms validated numerics, localizational computations, or enclosure methods are used) will appear as one important aspect common to most of the approaches.

Topics: Interval mathematics, hardware and software for interval and computer-algebraic methods, SC-languages, logic constraint programming, interval modelling, interval constraints, computer aided proofs in analysis, interval algorithms in control theory, organization of symbolic-numeric interfaces, programming environments for scientific computing, and applications in various fields of science and engineering as well as commercial issues.

Other information: Two copies of an extended abstract of maximum 2 pages are requested for selection purposes. The deadline will be May 1, 1996. Electronic submission is strongly recommended. A LaTex format will be available via WWW (see address below). Refereed proceedings including full versions of selected papers will be published.

Contact address:
Prof. Dr. J. Wolff v. Gudenberg
Lehrstuhl für Informatik II
Universität Würzburg, Am Hubland
D-97074 Würzburg
Tel. +49 - 931-888-5517
Fax. +49 - 931-888-4602
email: wolff@informatik.uni-wuerzburg.de
WWW: http://www.informatik.uni-wuerzburg.de/interval96

2ND MATHMOD

Date: 5-7 February, 1997.

Location: Technical Un. Vienna, Austria.

Other information: CAM-Newsletter 11, nr. 3.

Contact address:
Univ. Prof. Dr. Inge Troch
Technische Universitaet Wien (E114/5)
Wiedner Hauptstrasse 8-10, A-1040 Wien email:
itroch@email.tuwien.ac.bt

3 Institutional reports and doctoral theses

DEPARTEMENT OF COMPUTER SCIENCE
K.U.LEUVEN
CELESTIJNENLAAN 200A
B-3001 HEVERLEE (LEUVEN), BELGIUM

Reports:

TW-229 M. Van Barel and A. Bultheel: A generalized minimal partial realization problem.

TW-230 P. Kravanja and A. Haegemans: A Delves-Lyness method for computing zeros of analytic functions.

TW-231 G. DeSamblanx, K. Meerbergen and A. Bultheel: Rational approximations of exp(x) for the calculation of rightmost eigenvalues.

TW-232 T. Luzyanina and D. Roose: Numerical stability analysis and computation of Hopf bifurcation points for delay differential equations.

TW-233 P. Kravanja and A. Haegemans: Computing zeros of analytic functions via the qd-algorithm.

TW-234 K. Meerbergen and D. Roose: Rational transformation for the detection of rightmost eigenvalues of large sparse nonsymmetric matrices.

TW-235 P. Levrie and A. Bultheel: First-order linear recurrence systems and matrix continued fractions.

TW-236 M. Jansen, M. Malfait and A. Bultheel: Generalized cross validation for wavelet tresholding.